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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/863,725	05/23/2001	Paul S. Danielson	SP01-084	9913

7590

06/24/2003

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EXAMINER

VINCENT, SEAN E

ART UNIT

PAPER NUMBER

1731

DATE MAILED: 06/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/863,725

Applicant(s)

DANIELSON ET AL.

Examiner

Sean E Vincent

Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 May 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the particulate lining material and overlying fused silica sheet must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
2. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3 and 8 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Maxon (US 5698484). The features of applicant's claims were discussed as well known in the art at col. 1, line 45 to col. 2, line 12. It is the position of the examiner that "crushed particles of a purified refractory material" in the claims reads on the disclosure of "high purity bait sand" in Maxon. While Maxon does not state that zircon can withstand 1600°C temperatures, it would have been an inherent property of zircon.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 5-7, 12 and 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maxon.

8. Maxon did not teach maximum contaminant concentrations, i. e. 2ppm Na, 3ppm K and 6 ppm Fe. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to minimize impurities in the bait sand of Maxon since Maxon expressly stated "high purity bait sand."

9. Maxon did not teach the inclusion of a thin sheet of purified fused silica over the bait sand, per se. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to expect that in the process disclosed by Maxon, the first layer of fused

silica glass would have provided a thin sheet of purified fused silica because Maxon taught a method of successively depositing many layers of fused silica glass over the bait sand.

10. Claims 2, 4 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maxon in view of Clasen et al (US 4286981) and Noble (US 4628984).

11. Maxon did not teach that the particulate lining material and the furnace were made of the same refractory material. Maxon actually remains silent about the material from which the bait sand is made, but a preference for zircon is expressed for the furnace blocks. Clasen et al taught the lining of glass molds with various particles including corundum, quartz, SiC and "emery" (see abstract). Noble taught the use of mold lining materials including silica and zircon (see col. 5, lines 56-68). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to choose zircon from the known types of mold lining particles because Noble would seem to suggest that zircon and silica (quartz) are equivalent materials and Clasen et al provides confirmation that quartz sand was usable in glass molding.

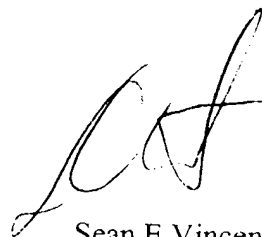
12. Maxon did not teach the use of recycled zircon material for bait sand. In light of the presence of zircon bricks in the furnace, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to crush and screen recycled zircon brick materials for use as bait sand because recycling would have obviated the need for special disposal arrangements.

13. Maxon, Clasen et al and Noble did not teach screening zircon to -4 to +80 mesh fraction. It would have been obvious to a person skilled in the art at the time the invention was made to screen crushed zircon material to such a fraction for the lining material because the specific process conditions recited are not critical but are merely optimal for the particular material being

treated and they would be within the skill of the art to determine, *In re Aller et al.*, 105 U.S.P.Q. 233, 42 C.C.P.A. 824. It is the position of the Examiner that it would not require undue experimentation by a person of ordinary skill in the art at the time the invention was made to find these conditions beneficial.

Conclusion

14. The prior art made of record and not relied upon is cited to further show the state of the art.
15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean E Vincent whose telephone number is 703-305-3607. The examiner can normally be reached on M - F (8:30 - 6:00) Second Monday Off.
16. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P Griffin can be reached on 703-308-1164. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.
17. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.



Sean E Vincent
Primary Examiner
Art Unit 1731

S Vincent
June 21, 2003